DETAILED ACTION

1. **Claims 22-46** are pending on this application.

Claims 1-21 are cancelled.

Drawings

2. The replacement drawings (i.e., Figs. 1, 2, 8 and 11) were received 08/26/2010, which replaces previously submitted drawings (Figs. 1, 2, 8 and 11). These drawings are accepted by examiner.

Specification

3. Amendment to the specification was received on 08/26/2010. These amendments are accepted by examiner.

Response to Argument

4. Applicant's arguments filed on **08/26/2010** have been fully considered but they are not persuasive.

Regarding independent claims 1, the applicant argues that the combination of Cecile '557 and Johansson '912 does not teach " a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold " remarks page 20 paragraph 2.

Examiner respectfully disagrees. Johansson '912, teaches a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold (see paragraphs 35-37 and Fig. 3, i.e., comparing resource requesting operators use of shared resources with a predetermined load threshold and determining whether to allow or reject the operator to the shared resources based on the

comparison), thus, the combination of Cecile '557 and Johansson '912 teaches applicants argued limitation.

In response to applicant argument that the references fail to show certain features of appellants invention. It is noted that the features upon which appellant relies (i.e., " In Applicants' technology the second threshold involved in the third determination is related to an agreed proportion of resources shared by the at least two operators for use by the first operator..."" page 21, paragraph 2) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant does **not** specifically claimed (in claim 1) *the second threshold involved in the third determination is related to an agreed proportion of resources shared by the at least two operators for use by the first operator.*

Thus, it is clear that the combination of Cecile '557 and Johansson '912 disclosed applicants broadly claimed invention.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 40-43** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 40, claim element " means for executing a first, means for executing a second, means for executing a third and means for deciding " is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim 41 contain a similar issue as discussed for claim 40 above, thus, claim 41 and dependent claims 42-43 are rejected for the same reasons as set forth above for claim 40.

Claim Rejections – 35 USC§ 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 22-36, 39, 44 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cecile (European Patent Application EP 1220557A1) in view of Johansson et al (US 2004/0219912 A1).

Regarding claim 22, Cecile '557 discloses, a method for managing resources in a communication system having resources shared by at least two operators(see paragraphs 60-61 and Fig. 6, i.e., operators A, B and C sharing, access shared spectrum 602 which is managed by common controller 606), comprising: receiving an access request for a first operator of the at least two operators (see paragraphs 61, 65, and Figs. 6, 8, i.e., common controller 606 receiving

shared spectrum access request from operator B); executing a first determination whether there are sufficient amount of free resources available in the communication system (see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold);

executing a second determination whether a total amount of said resources shared by at least two operators in use in the communication system exceeds a first threshold (see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough to accept a demand); and deciding on accepting the access request based on the results of the first (see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold), second determinations(see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough to accept a demand); furthermore, Cecile '557 teaches, using a third threshold associated with an operator to determine shared spectrum access for an access requesting operator(see paragraphs 39-40, 42-44 and Figs. 2-4, 8).

Cecile '557 does not explicitly teach, executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold, deciding on accepting the access request based on the results of the third determinations.

However, the above mentioned claimed limitation is well known in the art, as evidenced by Johansson '912. In particular, Johansson '912 teaches, executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold (see paragraphs 35-37 and Fig.3, i.e., comparing operators

use of shared resources with a predetermined load threshold) deciding on accepting the access request based on the results of the third determinations(see paragraphs 35-37 and Fig.3, i.e., allowing an operator to a shares resources access based on the comparison).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of determining whether an operators exceeds its shared resources threshold and deciding on accepting an access request based on the result as taught by Johansson '912, into the communication system of Cecile '557, in order to provide means fro exchanging usage information in the multi-operator mobile network, as suggested by Johansson '912(see abstract).

Regarding claim 23, Cecile '557 discloses, a method wherein the step of executing the second determination is performed only if the first determination shows that there are sufficient free resources available in the communication system (see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough and if enough bandwidth exist determining whether additional spectrum can be given to accept more calls).

Regarding claim 24, Cecile '557 discloses, wherein the access request is accepted if the second determination shows that the total amount of resources in use in the communication system does not exceed the first threshold(see paragraphs 43-44, 74-75, i.e., allowing new calls if the amount of shared resources is not exceeding a predetermined threshold).

Regarding claim 25, Cecile '557 discloses, the act of size discrimination based on the capacity requested by the incoming connection dependent on the total amount of resources in use in the communication system if the second determination shows that the total amount of

resources in use in the communication system does not exceed the first threshold (see paragraphs 77-81, i.e., allowing access to the shared spectrum according to size of requests).

Regarding claim 26, Cecile '557 discloses, determination of a threshold class dependent on the total amount of resources in use in the communication system (see paragraphs 39, 42-43 and figs. 2-4, dynamic thresholds based on available resources);

comparing an amount of resources required by the access request with a maximum accepted size associated with the determined threshold class(see paragraphs 52-55 and Fig.5, i.e. comparing new call service request with the admission proprietary threshold); accepting the access request if the amount of resources required by the access request is smaller than or equal to the maximum accepted size(see paragraphs 52-55 and fig. 5, i.e. accepting the requested service if the service request is less than the threshold); and rejecting the access request if the amount of resources required by the access request is larger than the maximum accepted size(see paragraphs 52-55 and Fig. 5, i.e., rejecting the requested service if it's greater than the threshold).

Regarding claim 27, Cecile '557 discloses, wherein the act of executing the third determination is performed only if the second determination shows that the total amount of resources in use in the communication system exceeds the first threshold (see paragraphs 52-54 and Fig. 5, i.e., accepting/rejecting access requests based on two thresholds).

Regarding claim 28, Cecile '557 discloses, wherein the access request is accepted if the third determination shows that the total amount of resources in use for the first operator does not exceed the second threshold (see parag71-74 and Figs. 5, 8,i.e., accepting the access request if the amount of resource available doesn't exceed a second threshold).

Regarding claim 29, Cecile '557 discloses, wherein the first threshold is equal to a pre-determined congestion threshold (see Fig. 8, i.e., step 814 a predetermined operator proprietary threshold).

Regarding claim 30, Cecile '557 discloses, wherein the first threshold is equal to a pre-determined congestion threshold minus the amount of resources required by the access request (see paragraphs 42-44 and Figs. 2-4, i.e., predetermined operator proprietary threshold between admission threshold and depart or drop thresholds).

Regarding claim 31, Cecile '557 is silent on, wherein the second threshold is equal to a pre-determined portion of the total resources allocated to the first operator.

Johansson '912 teaches, wherein the second threshold is equal to a pre-determined portion of the total resources allocated to the first operator threshold (see paragraphs 35-37 and Fig.3, i.e., comparing operator's use of shared resources with a predetermined load threshold).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of determining whether an operators exceeds its shared resources threshold and deciding on accepting an access request based on the result as taught by Johansson '912, into the communication system of Cecile '557, in order to provide means fro exchanging usage information in the multi-operator mobile network, as suggested by Johansson '912(see abstract).

Regarding claim 32, Cecile '557 discloses, wherein the second threshold is equal to a pre-determined portion of the total resources allocated to the first operator minus the amount of resources required by the access request (see paragraphs 42-44 and Figs. 2-4, i.e., predetermined depart threshold between the operator proprietary threshold and drop thresholds).

Regarding claim 33, Cecile '557 discloses, further comprising the act of storing a respective measure of the fraction of resources currently in use by each of said at least two operators(see paragraphs 51-52, i.e., the common controller 606 storing shared spectrum use of operators A , B and C in order to determine new call acceptance), said measure for the first operator being updated upon accepting the access request or when an already established connection for the first operator is terminated(see paragraphs 52-54, i.e., updating operators use of the shared spectrum).

Regarding claim 34, Cecile '557 silent on, updating the respective measures by means of resource utilisation information from an external source.

Johansson '912 teaches, updating the respective measures by means of resource utilisation information from an external source (see paragraphs 29-31 and Figs. 2-3, i.e., using the eIur(-g) interface to update usage shared resources).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of determining whether an operators exceeds its shared resources threshold and deciding on accepting an access request based information received via the interface as taught by Johansson '912, into the communication system of Cecile '557, in order to provide means fro exchanging usage information in the multi-operator mobile network, as suggested by Johansson '912(see abstract).

Regarding claim 35, Cecile '557 discloses, wherein the access request is rejected if the first determination shows that there are not sufficient free resources available in the communication system **or** if the third determination shows that the total amount of resources in use for the first operator exceeds the second threshold (see paragraph 72 and Fig. 8, step 814,

i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold).

Regarding claim 36, Cecile '557 discloses, evaluating a priority of the access request if the first determination shows that there are not sufficient free resources available in the communication system or if the third determination shows that the total amount of resources in use for the first operator exceeds the second threshold (see paragraphs 76-81 and Fig.9, i.e., if access to the shared spectrum by the operators exceeds the threshold using a priority level to allow access to the shares spectrum).

Regarding claim 39, Cecile '557 discloses, wherein the act of receiving an access request for the first operator in turn receiving a renegotiation request for an ongoing call from the first operator(see paragraphs 64 65 and Fig.7, i.e., common controller 702 and local controller 704 communicating access request and grant information);

providing a supplementary access request for the first operator having an access request size corresponding to the difference between a requested size and a present size of the ongoing call, if the requested size is larger than the present size (see paragraphs 69-72, i.e., local controller B reducing the access request); and performing a change of resource utilisation for the ongoing call, if the present size is larger than the requested size (see paragraphs 70-73 and Figs. 7-8, i.e., common controller 702 changing resource allocation based on available resources).

Regarding claim 44, Cecile '557 discloses, wherein the acts of executing the first determination, executing the second determination, executing the third determination, and deciding on accepting the access request are performed by a node of the communication system (see paragraphs 64-67, 70-73 and Figs. 7-8, i.e., common controller 702 receiving access

requests and determining whether to accept or reject by computing access requests with multiple thresholds).

Regarding claim 46, Cecile '557 discloses, a node for managing resources in a communication system (see paragraphs 61, 65, and Figs. 6, 8, i.e., common controller 606 receiving shared spectrum access request from operator B), the communication system comprising a radio access network (RAN) having resources shared by at least two operators(see paragraphs 60-61, and Fig. 6, i.e., operators A, B and C sharing, access shared spectrum 602 which is managed by common controller 606), said device comprising:

means for receiving an access request for a first operator of the at least two operators system (see paragraphs 61, 65, 71-73 and Figs. 8 steps 812- 822 i.e., common controller 606 receiving shared spectrum access request from operators A/B/C);

a shared resources manager configured to execute plural determinations and to decide on accepting the access request based on the results of the plural determinations(see paragraphs 44-46, 72, 74-75 and Fig. 8, steps 814, 842-846 i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold and determining whether available bandwidth on shared spectrum is enough to accept a demand and based on the determining steps deciding whether to accept the request);

the plural determinations including: a first determination whether there are sufficient amount of free resources available in the communication system (see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold);

a second determination whether a total amount of said resources shared by at least two operators in use in the communication system exceeds a first threshold(see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough to accept a demand).

Cecile '557 does not explicitly teach, a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold.

However, the above mentioned claimed limitation is well known in the art, as evidenced by Johansson '912. In particular, Johansson '912 teaches, a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold (see paragraphs 35-37 and Fig.3, i.e., comparing operators use of shared resources with a predetermined load threshold).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of determining whether an operators exceeds its shared resources threshold and deciding on accepting an access request based on the result as taught by Johansson '912, into the communication system of Cecile '557, in order to provide means fro exchanging usage information in the multi-operator mobile network, as suggested by Johansson '912(see abstract).

10. **Claims 40-43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cecile '557 in view of Peltola et al (US 7218937 B2).

Regarding claim 40, Cecile '557 discloses, a device for managing resources in a communication system (see paragraphs 61, 65, and Figs. 6, 8, i.e., common controller 606

receiving shared spectrum access request from operator B), the communication system having resources shared by at least two operators (see paragraphs 60-61, and Fig. 6, i.e., operators A, B and C sharing, access shared spectrum 602 which is managed by common controller 606), said device comprising:

means for receiving an access request for a first operator of the at least two operators; means for executing a first determination whether there are sufficient amount of free resources available in the communication system(see paragraphs 61, 65, 71-73 and Figs. 8 steps 812- 822 i.e., common controller 606 receiving shared spectrum access request from operators A/B/C);

means for executing a second determination whether a total amount of said resources shared by at least two operators in use in the communication system exceeds a first threshold(see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold); and means for deciding on accepting the access request based on the results of the first (see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold), second determinations(see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough to accept a demand).

Cecile '557 does not explicitly teach, means for executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold, deciding on accepting the access request based on the results of the third determination.

However, the above mentioned claimed limitation is well known in the art, as evidenced by Peltola '937. In particular, Peltola '937 teaches, means for executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold(see column 3 lines 20- column 4 line 52 and Figs. 1, 5, 6, i.e., determining whether the amount of resources used by the operator B is greater than a threshold), deciding on accepting the access request based on the results of the third determination (see column 4 lines 1-55 and Figs. 5-6, i.e., determining on whether to accept incoming call by comparing the amount of resources used by the operator B with a threshold).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of comparing operators current resource use with a threshold and determining on whether to accept or reject resource request based on the determining as taught by Peltola '937, into the communication system of Cecile '557, such modification would enable an optimum radio resource management- and hardware usage, as taught by Peltola '937(see column 1 lines 19-28).

Regarding claim 41, Cecile '557 discloses, An arrangement comprising a device for managing resources in a communication system (see paragraphs 61, 65, and Figs. 6, 8, i.e., common controller 606 receiving shared spectrum access request from operator B), the communication system having resources shared by at least two operators (see paragraphs 60-61, and Fig. 6, i.e., operators A, B and C sharing, access shared spectrum 602 which is managed by common controller 606), said device comprising

means for receiving an access request for a first operator of the at least two operators; means for executing a first determination whether there are sufficient amount of free resources

available in the communication system(see paragraphs 61, 65, 71-73 and Figs. 8 steps 812- 822 i.e., common controller 606 receiving shared spectrum access request from operators A/B/C);

means for executing a second determination whether a total amount of said resources shared by at least two operators in use in the communication system exceeds a first threshold(see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold); and means for deciding on accepting the access request based on the results of the first (see paragraph 72 and Fig. 8, step 814, i.e., determining whether a call can be accepted by a proprietary system by comparing the call impact with a threshold), second determinations(see paragraphs 44-46, 74-75 and Fig. 8, step 842-846, i.e., determining whether available bandwidth on shared spectrum is enough to accept a demand).

Cecile '557 does not explicitly teach, means for executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold, deciding on accepting the access request based on the results of the third determination.

However, the above mentioned claimed limitation is well known in the art, as evidenced by Peltola '937. In particular, Peltola '937 teaches means for executing a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold(see column 3 lines 20- column 4 line 52 and Figs. 1, 5, 6, i.e., determining whether the amount of resources used by the operator B is greater than a threshold), deciding on accepting the access request based on the results of the third

determination (see column 4 lines 1-55 and Figs. 5-6, i.e., determining on whether to accept incoming call by comparing the amount of resources used by the operator B with a threshold).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of comparing operators current resource use with a threshold and determining on whether to accept or reject resource request based on the determining as taught by Peltola '937, into the communication system of Cecile '557, such modification would enable an optimum radio resource management- and hardware usage, as taught by Peltola '937(see column 1 lines 19-28).

Regarding claim 42, the combination of Cecile '557 and Peltola '937 discloses, wherein the arrangement is a shared universal mobile telecommunication system terrestrial radio access network and the device is comprised in a radio network controller (see Cecile '557, paragraph 28 using the resource sharing system in a UMTS controlled by RNC).

Regarding claim 43, the combination of Cecile '557 and Peltola '937 discloses wherein the arrangement is the communication system (see rejection of claim 41 above).

11. **Claim 45** is rejected under 35 U.S.C. 103(a) as being unpatentable over Cecile '557 in view of Johansson '912 and Peltola et al(US 7218937 B2).

Regarding claim 45, the combination of Cecile '557 and Johansson '912 does not explicitly teach, wherein the second threshold is related to an agreed proportion of resources shared by the at least two operators for use by the first operator.

However, the above mentioned claimed limitation is well known in the art, as evidenced by Peltola '937. In particular, Peltola '937 teaches, wherein the second threshold is related to an

agreed proportion of resources shared by the at least two operators for use by the first operator (see column 3 lines 20- column 4 line 52 and Figs. 1, 5, 6, i.e., determining whether the amount of resources used by the operator B is greater than a threshold, notice the threshold indicates operator B maximum use of assigned resources).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate, the method of comparing operators current resource use with a threshold and determining on whether to accept or reject resource request based on the determining as taught by Peltola '937, into the combined communication system of Cecile '557 and Johansson '912, such modification would enable an optimum radio resource management- and hardware usage, as taught by Peltola '937(see column 1 lines 19-28).

Allowable Subject Matter

12. The indicated allowability of **claims 40-43** is withdrawn in view of the newly discovered reference(s) to Peltola et al (US 7218937 B2).

13. **Claims 37 and 38** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, Uddenfeldt (US 5805633 A), Kuchibhotla et al (US 2005/0075129 A1), Cave (US 2005/0124353 A1) are recited to show shared resources management.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AWET HAILE whose telephone number is (571)270-3114. The examiner can normally be reached on Monday through Friday 8:30 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2474

/AWET HAILE/
Examiner, Art Unit 2474